

The identity of *Anarsia decolorella* ZELLER, 1839 (Gelechiidae ; Tortricidae)

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ZELLER described *Anarsia decolorella* from a single male from Sicily and placed it as the first species in his newly established genus *Anarsia* (Gelechiidae), to be followed by *spartiella* SCHRANK and *lineatella* ZELLER. Subsequently, WOCKE (1861 : 98) placed it as a doubtful synonym of the tortricid *Stenodes chamomillana* (HERRICH-SCHÄFFER); however, based on an examination of an ostensibly authentic male received on loan from ZELLER, HEINEMANN (1870 : 209) placed *decolorella* in *Gelechia* (Gelechiidae), where it remained until transferred to *Chionodes* (Gelechiidae) (SATTLER, 1960 : 36). REBEL (1901 : 143) appears to have noticed some discrepancy between ZELLER's original description of *decolorella* and that of the alpine species referred to under that name by HEINEMANN. He therefore attributed the name *decolorella* to HEINEMANN, adding ZELLER's reference with "?" but omitting Sicily from the distribution. This practice was followed by all subsequent authors until attention was drawn to ZELLER's authorship (SATTLER, 1960 : 37).

It has always puzzled me that ZELLER should have described an apparent alpine endemic from Sicily where it is unlikely to occur. Moreover, I was unable, until now, to trace ZELLER's holotype although the types of most other species described by him are still in existence. In the course of other duties I recently found the holotype in the tortricid collection of the British Museum (Natural History). As a result of this discovery it becomes necessary to transfer the name *decolorella* ZELLER to the Tortricidae where it is a senior synonym of *Stenodes chamomillana* (HERRICH-SCHÄFFER). The alpine gelechiid hitherto known as *Chionodes decolorella* (ZELLER) must now be called *Chionodes pergrandella* (REBEL).

Stenodes decolorella (ZELLER, 1839) comb. n.

Anarsia decolorella ZELLER, 1839, *Isis, Leipzig* 1839 : 190. Holotype ♂,
ITALY : Sicily (RCHT.) (coll. ZELLER, BMNH, London) [examined].

Cochylis chamomillana HERRICH-SCHÄFFER, 1851, *Syst. Bearb. Schmett. Eur.* 4 : 183 ; 1850, *ibid.* 5, pl. 53, fig. 377 [*chamomilana* (sic !) ; non-binominal]. Syntypes (number and sex not stated) TURKEY : (FRIVALDSKY) [not traced]. *Syn. n.*

Cochylis pentactinana MANN, 1855, *Verh. zool.-bot. Ver. Wien* 5 : 554. Holotype ♂, CORSICA : 1855 (MANN) (NM, Vienna) [not examined]. *Syn. n.*

Stenodes chamomillana (HERRICH-SCHÄFFER) ; RAZOWSKI, 1970, [in] AMSEL, GREGOR & REISSER, *Microlepid. palaearct.* 3 : 187, pl. 10, fig. 106, pl. 57, fig. 106, pl. 129, fig. 106.

The holotype of *A. decolarella* bears the following labels : 'Decolarella Z. Isis 1839, 190., Sicil. RCHT.' [ZELLER's handwriting] ; 'Ein Tortrix, höchstwahr-sch[ein]l[ich] chamomillana FRIV.' [unidentified handwriting, possibly WOCKE] ; 'Conchylis chamomillana Hs. 377., decolarella Z. Is.' [ZELLER's handwriting]. This label sequence suggests that the holotype was correctly recognized by a subsequent revisor to be conspecific with *chamomillana*, an interpretation accepted by ZELLER, who recorded it on his second label. The unidentified reviser was probably WOCKE, the only previous author ever to have linked *decolorella* with *chamomillana* and the Tortricidae (WOCKE, 1861 : 98). RAZOWSKI, who examined this specimen during his work on Microlepidoptera Palaearctica, vol. 3, did not recognize it as the type of *decolorella* which at that time was believed to be a gelechiid.

Chionodes pergrandella (REBEL, 1917) *comb. n.*

Gelechia pergrandella REBEL, 1917, *Dt. ent. Z. Iris* 30 : 193. Lectotype ♂, U.S.S.R. : Tuvinskaya Avt. Oblast, eastern Tannu Ola mountains ('Schawyr'), vi.1914 (BANG-HAAS) (NM, Vienna), here designated [examined].

[*Gelechia decolarella* (ZELLER) STAUDINGER, 1856 : 45 ; HEINEMANN, 1870 : 209 ; WOCKE, 1871 : 290 ; REBEL, 1901 : 143 ; MEESS, 1910 : 362 ; MÜLLER-RUTZ, 1914 : 485 (footnote) ; Lepidopterologische Sektion, 1915 : 169 ; HÖFNER, 1918 : 4 ; CARADJA, 1920 : 98 ; MEYRICK, 1925 : 84 ; HERING, 1932 : 117 ; GAEDE, 1937 : 158 ; Authorship attributed to HEINEMANN by most authors. Misidentifications].

[*Gelechia decolarella* ab. *colorella* CARADJA, 1920, *Dt. ent. Z. Iris* 34 : 98. Holotype ♂, U.S.S.R. : Tadzhikistan/Kirgiziya, Alayskiy Khrebet ('Alaigebirge'), 3000 m (KORB) (MINGA, Bucharest) [examined]. Unavailable (infrasubspecific) name. Misidentification].

[*Chionodes decolarella* (ZELLER) SATTLER, 1960 : 36, figs. 35, 105 [♂, ♀ genitalia] ; KLIMESCH, 1961 : 648 ; HARTIG, 1964 : 23 ; BURMANN, 1977 : 139, figs. B2, B3 [♂, ♀ moth]. Misidentification].

G. pergrandella was described from an unspecified number of males. The collector of the material is unknown and REBEL received the specimen(s) from the entomological dealer O. BANG-HAAS. The only original specimen known to me is in NM. Vienna, and is here designated as the lectotype.

Between 1870 and 1960 the alpine specimens of *pergrandella* were known as '*Gelechia decolarella* HEINEMANN' and after 1960 as '*Chionodes decolarella* (ZELLER)'. As demonstrated above, the application of the name *decolorella* to this gelechiid species is incorrect. HEINEMANN's interpretation was based on a male that he had received from ZELLER as *decolorella*. This specimen is preserved in BMNH and bears the labels '*Decolarella* Z., MANN lit. 3/9 49. 47., Gross Glockner' [ZELLER's handwriting] and 'vidit HNM. [HEINEMANN]'. It remains a mystery why ZELLER, having recognized the true identity of his *decolorella*, loaned HEINEMANN a completely different species under that name.

The alpine specimens examined differ from Central Asiatic *pergrandella* by their brown rather than greyish brown colour; however, this difference is not significant enough to justify a separate name for the alpine form. CARADJA (1920 : 98), discussing a series of specimens from Alayskiy Khrebet ('Alaigebirge'), described the typical form as loamy yellow ('lehmgelb') and separated smoky brown ('rauchbraun') individuals as ab. *colorella*. His holotype of *colorella* is a male and I consider it likely that the noted colour difference is merely that between the sexes. No significant colour difference was observed between the sexes of alpine material, but the only female amongst 32 Mongolian specimens, although in less than perfect condition, appears brown whereas the associated males are grey.

Externally, and in the male and female genitalia, *pergrandella* is very similar to the North American *Chionodes fluvialella* (BUSCK, 1910). Canadian specimens of *fluvialella* (2 ♂, 14 ♀) differ from Central Asiatic (31 ♂, 1 ♀) and alpine (6 ♂, 2 ♀) *pergrandella* by the smaller size (wingspan *fluvialella* ♂ 19-20 mm, ♀ 16.5-20 mm; *pergrandella* ♂ 20-23 mm, ♀ 19-20 mm) and the more pronounced sexual dimorphism (*fluvialella* ♂ dark grey-brown, ♀ yellowish brown). No differences were observed in the male and female genitalia. The male genitalia of *fluvialella* are illustrated by BARNES & BUSCK (1920, pl. 37, fig. 7). If *pergrandella* is found to be conspecific with *fluvialella*, the latter is the senior name.

In *pergrandella*, as in several other *Chionodes* species (for example *distinctella*), the wing shape of the female differs from that of the male. In the male the costal and dorsal margins of the forewing diverge towards the termen, and the wing is distinctly wider at 2/3 than at 1/3; in the female both margins are almost parallel and the wing is not wider at 2/3. In the hind wing

the termen of the female is more oblique than that of the male and the apex is more pointed (BURMANN, 1977, figs. B2 ♂, B3 ♀). This dimorphism probably represents a trend towards wing reduction in the female. It is possible that the female of *pergrandella* flies little, if at all, and for that reason is rarely collected. It should be noted, however, that I have observed more females than males of *fluvialella* to be attracted to light.

Biology. Host-plant unknown. In the Alps the moths occur between the beginning of July and mid-August ; collecting data from Central Asia range from June to July. Preferred habitats in the Alps are the edges of streams and gravel channels with abundant vegetation. The males were mostly flushed out of large stands of *Oxyria digyna* (L.) HILL and *Rumex scutatus* L. (Polygonaceae) and occasionally were found under rocks. The females live well concealed ; BURMANN found the female once under a flat stone. The larva is suspected to feed on the above plants (BURMANN, 1977 : 139). In the Alps *pergrandella* is usually found from 2000-2800 m ; there is a single record from 1600 m (Carinthia, Saualpe) (HÖFNER, 1918 : 4). A specimen from Passiria, Platt, labelled '1100 m' was almost certainly collected much higher up in the surrounding mountains. In Central Asia *pergrandella* was collected between 1500 m and 3000 m.

Distribution. Local in the Swiss, Austrian and Italian Alps ; apparently more widespread in Central Asia.

Switzerland, Valais (Simplon) ; Graubünden (Flüela Pass ; Engadin). Austria, Kärnten (Hohe Tauern, Grossglockner area) ; Steiermark. Italy, Lombardia (Ortles) ; Trentino (Passiria ; Alpi Domolitiche). U.S.S.R., Tadzhikistan/Kirgiziya (Alayskiy Khrebet) ; Tuvinskaya Avt. Oblast (Tannu Ola). Mongolia, Chövsgöl aimak ; Archangaj aimak ; Central aimak. According to the literature also in Switzerland, Graubünden (Alp Grüm, Val Bevers ; Albula) (MÜLLER-RUTZ, 1914 : 485, footnote ; suppl. VI, 246, suppl. VII, 378) ; Austria, Tirol (Lechtaler Alpen ; Ötztaler Alpen ; Stubaier Alpen ; Zillertaler Alpen) (BURMANN, 1977 : 139, map) ; Kärnten (Saualpe) (HÖFNER, 1918 : 4) ; Niederösterreich (Östliche Kalkalpen) (Lepidopterologische Sektion, 1915 : 169). The unspecified records for Yugoslavia, Slovenija ('Carniola') (REBEL, 1901 : 143) and Srbija ('Serbien') (GAEDE, 1937 : 158) are dubious and require confirmation.

Material examined. Primary types see above. Switzerland : 1 ♀, Valais, Simplon (ANDERECK) (BMNH) ; 1 ♂, Graubünden, Engadin (FREY) (BMNH) ; 1 ♂, Graubünden, Flüela Pass, north side, 1.vii.1925 (OSTHEDER) (ZS, Munich). Austria : 1 ♂, Kärnten, Grossglockner area (MANN) (BMNH) ; 1 ♂, Steiermark ('Styria') (HÖFNER) (ZM, Berlin). Italy : 1 ♀, Lombardia, Ortles, Trafoi, 6.viii. (ZM, Berlin) ; 1 ♂, Trentino, Passiria, Plata ('Platt'), 7.viii.1961 (HARTIG) (MIZS, Turin) ; 1 ♂, Trentino, Alpi Dolomites (HARTIG) (MIZS, Turin).

mitiche, Carbonin ('Schluderbach'), 1876 (MANN) (NM, Vienna). U.S.S.R. : [types of *pergrandella* and *colorella*]. Mongolia : 13 ♂, Chövsgöl aimak, between Somon Cecerleg and Somon Bajan-ul, 65 km W of Cecerleg, 1700 m, 22.vi.1968 (KASZAB, no. 1003) (TM, Budapest ; BMNH) ; 4 ♂, Chövsgöl aimak, at lake Tunamal nuur, 26 km SW of Somon Scharga, 1950 m, 15.vii.1968 (KASZAB, no. 1112) (TM, Budapest) ; 4 ♂, Chövsgöl aimak, 8 km N of Somon Alag-erdine, at river Egijn gol, 1600 m, 17.vii.1968 (KASZAB, no. 1121) (TM, Budapest ; BMNH) ; 1 ♂, Chövsgöl aimak, N of Somon Chatgal, on SW shore of lake Chövsgöl nuur, 1650 m, 18.vii.1968 (KASZAB, no. 1124) (TM, Budapest) ; 1 ♂, Chövsgöl aimak, 4 km NW of town Mörön, 1500 m, 19.vii.1968 (KASZAB, no. 1128) (TM, Budapest) ; 5 ♂, Archangaj aimak, Changaj mountains between Somon Ichtamir and Somon Culuut, 20 km W of Ichtamir, 2150 m, 19.vii.1966 (KASZAB, no. 716) (TM, Budapest ; BMNH) ; 3 ♂, 1 ♀, Central aimak, 11 km S of pass Zasijn davaa, 90 km of Ulan-Baator, 1650 m, 15-16.vii.1967 (KASZAB, no. 922, 923) (TM, Budapest).

Abbreviations

BMNH — British Museum (Natural History), London, U.K.

MINGA — Muzeul de Istorie Naturală 'Grigore Antipa', Bucharest, Rumania.

MIZS — Museo ed Istituto di Zoologia Sistematica, Turin, Italy.

NM — Naturhistorisches Museum, Vienna, Austria.

TM — Természettudományi Múzeum, Budapest, Hungary.

ZM — Zoologisches Museum der Humboldt-Universität, Berlin, East Germany.

ZS — Zoologische Staatssammlung, Munich, West Germany.

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References

BARNES, W. & BUSCK, A., 1920. Notes and new species. *Contr. nat. Hist. Lepid. N. Am.*, **4** : 211-278, pls 26-40.

BURMANN, K., 1977. Gelechiiden aus Gebirgslagen Nordtirols (Österreich) (Insecta : Lepidoptera, Gelechiidae). *Ber. naturw.-med. Ver. Innsbruck*, **64** : 133-146, 18 figs, 1 map.

CARADJA, A., 1920. Beitrag zur Kenntnis der geographischen Verbreitung der Mikrolepidopteren des palaearktischen Faunengebietes nebst Beschreibung neuer Formen. III. Teil. *Dt. ent. Z. Iris*, **34** : 75-179.

GAEDE, M., 1937. Gelechiidae. *Lepid. Cat.*, **79**, 630 pp.

HARTIG, F., 1964. Microlepidotteri della Venezia Tridentina e delle regioni adiacenti. Parte III. (Fam. Gelechiidae-Micropterygidae). *Studi trent. Sci. nat.*, **41** (3) : 1-138 ; **41** (4) : 143-297.

HEINEMANN, H. VON, 1870. Die Schmetterlinge Deutschlands und der Schweiz. Zweite Abteilung. Kleinschmetterlinge. Band II. Die Motten und Federmotten. Heft I. 388 pp. Braunschweig.

HERING, M., 1932. Die Schmetterlinge nach ihren Arten dargestellt. In BROHMER, P., EHRMANN, P. & ULMER, G. Die Tierwelt Mitteleuropas. Ergänzungsband 1. ix + 545 pp., 808 figs. Leipzig.

HÖFNER, G., 1918. Die Schmetterlinge Kärntens. III. *Jb. naturh. Landesmus. Kärnten*, **29** : 1-118.

KLIMESCH, J., 1961. Lepidoptera. I. Teil : Pyralidina, Tortricina, Tineina, Eriocraniina und Micropterygina. In FRANZ, H. Die Nordost-Alpen im Spiegel ihrer Landtierwelt, **2** : 481-789. Innsbruck.

Lepidopterologische Sektion der k.k. zoologisch-botanischen Gesellschaft Wien, 1915. Prodromus der Lepidopterenfauna von Niederösterreich. *Abh. zool.-bot. Ges. Wien*, **9** (1) : 1-221, 1 map.

MEESS, A., 1910. See SPULER, A., 1903-1910.

MEYRICK, E., 1925. Lepidoptera Heterocera. Fam. Gelechiidae. *Genera Insect.*, **184** : 1-290, pls 1-5.

MÜLLER-RUTZ, J., 1914. See VORBRODT, K. & MÜLLER-RUTZ, J. 1913-1914.

REBEL, H., 1901. Famil. Pyralidae-Micropterygidae. In STAUDINGER, O. & REBEL, H. Catalog der Lepidopteren des palaearktischen Faunengebietes **2**, 368 pp. Berlin.

SATTLER, K., 1960. Generische Gruppierung der europäischen Arten der Sammell-gattung *Gelechia* (Lepidoptera, Gelechiidae). *Dt. ent. Z. (N.F.)* **7** : 10-118, text-figs 1-138.

SPULER, A., 1903-1910. Die Schmetterlinge Europas **2**, [vi] + 523 pp., 238 text-figs. Stuttgart.

STAUDINGER, O., 1856. Beitrag zur Lepidopteren-Fauna von Ober-Kärnten (Schluss). *Stettin. ent. Ztg.* **17** : 37-48.

VORBRODT, K. & MÜLLER-RUTZ, J., 1913-1914. Die Schmetterlinge der Schweiz **2**, 726 pp. Bern. Suppl. VI, 1932, pp. 246 ; Suppl. VII, 1945, p. 378 (in *Mitt. Schweiz ent. Ges.*).

WOCKE, M., 1861. Microlepidoptera. In STAUDINGER, O. & WOCKE, M. Catalog der Lepidopteren Europa's und der angrenzenden Länder, xvi + 192 pp. Dresden.

WOCKE, M., 1871. II. Microlepidoptera. In STAUDINGER, O. & WOCKE, M. Catalog der Lepidopteren des europäischen Faunengebietes xxxviii + 426 pp. Dresden.